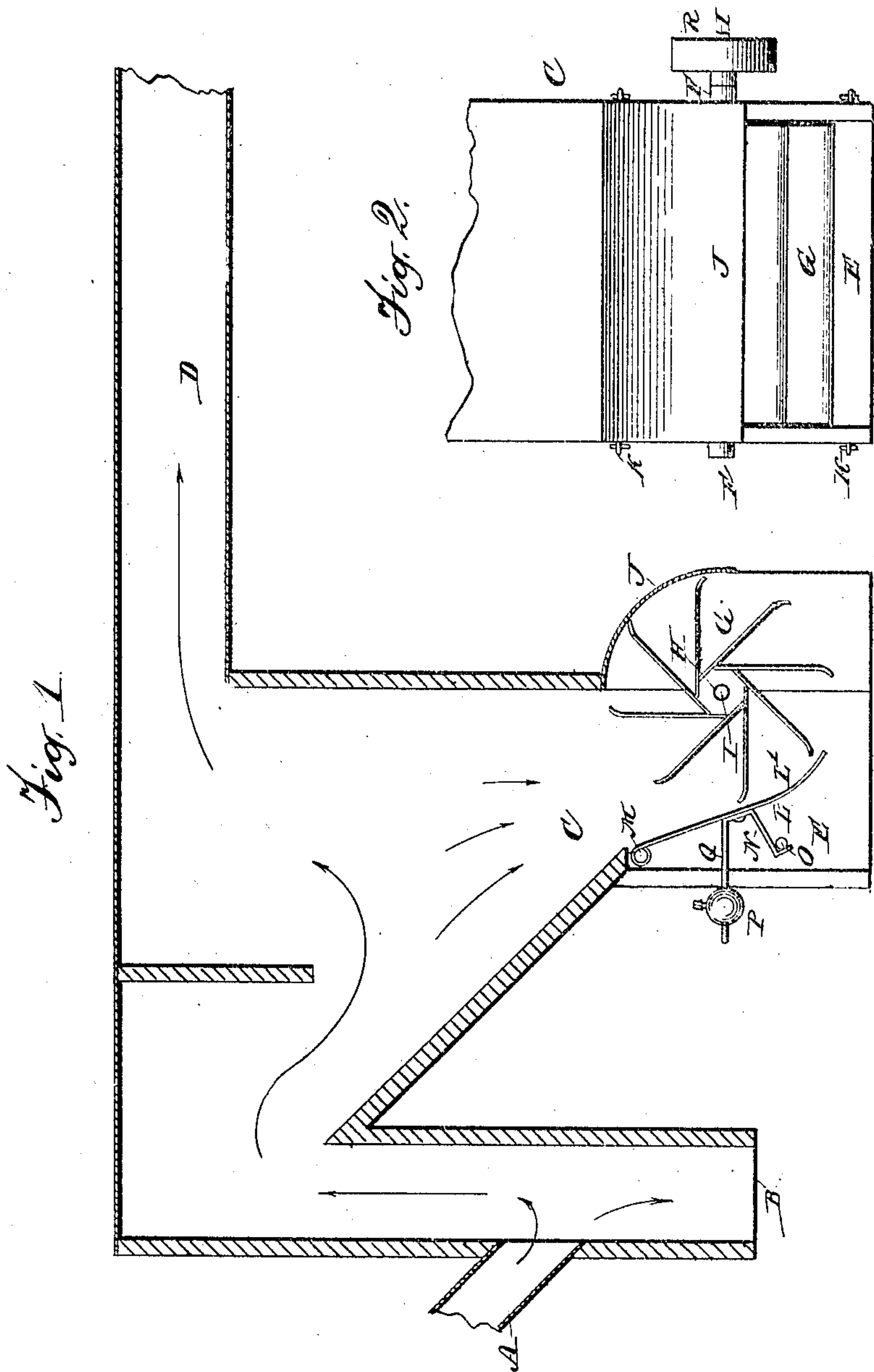


C. J. H. GRANT.  
 VALVE FOR GRAIN SEPARATORS.  
 APPLICATION FILED OCT. 3, 1907.

913,377.

Patented Feb. 23, 1909.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

CHARLES J. H. GRANT, OF CEDAR RAPIDS, IOWA.

## VALVE FOR GRAIN-SEPARATORS.

No. 913,377.

Specification of Letters Patent.

Patented Feb. 23, 1909.

Application filed October 3, 1907. Serial No. 395,782.

*To all whom it may concern:*

Be it known that I, CHARLES J. H. GRANT, a citizen of the United States, residing at Cedar Rapids, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Valves for Grain-Separators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to that class of grain separators in which the separation of impurities from grain, or of the grain itself into grades differing in relative weight or quality, is effected by means of suction or exhaust fans, the lighter material being sucked from the stream of grain in its forward flow.

The object of this invention is to provide a gate in the settling chamber of such a separator, adapted to permit the sudden escape of a mass of such settlings without interrupting the action of the exhaust.

The nature of the invention is fully disclosed in the description and claim following, reference being had to the accompanying drawings, in which—

Figure 1 is an end view of apparatus embodying my improvements, the framework of the separator to which it is attached being in section. Fig. 2 is a view of the same as seen from the right side of Fig. 1.

In the drawing the separator is shown diagrammatically.

A is a spout by which the grain enters, with an outlet at B for the heavier grain.

C is a settling chamber for the lightest materials, dust, and the like.

D is an air-trunk leading to an exhaust fan, not shown. These parts are all of a familiar type, and need not be particularly described.

It is usual to provide the lower part of the settling chamber with a gate, which is little more than a simple door hinged at the upper side, and adapted to swing outwardly. This opens when an accumulation of fine stuff falls in a lump, but in practice it often fails to close, and as this part of the separator is in direct communication with the exhaust, the immediate effect is to impair the suction, and of course the separator fails to do its work properly. My improved gate permits such a

mass of material to pass through and by the very nature of its construction closes the gap immediately, so that there is no check on the suction.

In a chamber E at the bottom of the settling chamber is mounted, in suitable bearings F, a rotary gate G. In practice this has a polygonal hub H provided with terminal trunnions I mounted in said bearings. To the flat faces of the hub are secured wings of sheet steel or iron, which accordingly stand at a tangent, as shown. These wings should preferably be flexible, so as to spring back should anything obstruct their outer edges, which are curved a little, as shown. The rotary gate being constructed as shown with a polygonal hub having wings secured to the flat faces thereof to provide for the tangential arrangement of said wings requires no means for driving it as the weight of the falling material will cause said gate to revolve and discharge its contents, said material falling against the upper face of one of the wings which is caused by the tangential arrangement of said wings. It is impossible with this construction for the gate to stop in such a position as to bring the weight of the falling material on a dead center. The curved shape of the wings also assists in avoiding any possibility of the stopping of the gate on a dead center and the consequent clogging of the chute. In front of the gate is a semi-circular housing J, lying quite close to the outer edges of the wings, and embracing two of them. This housing may be readily removed, to give access to the gate, as by releasing hooks K, by which it is attached to the separator. On the opposite side of the gate, and forming a backing therefor, is an apron L, slightly curved at L', and hinged to the separator at M. To limit its inward movement it is provided with a simple bracket N engaging a stop O. It is held normally in this position elastically, as by a weight P mounted on an arm Q, which may be a part of the bracket.

A trunnion of the gate is shown in Fig. 2 provided with a pulley R, by which continuous rotary movement might be imparted to the gate. In practice this is not deemed essential, however, as the simple dropping of masses of material on the tangent wings causes the gate to turn, and this is all that is required of it. So long as it will

turn it cannot clog, and at no point in its movement does it cut off or impair the action of the exhaust fan.

Having thus described my invention, I  
5 claim:

The combination with the settling chamber of a separator, of a rotary gate for closing the outlet of said chamber, having tangentially disposed resilient wings with the free

ends of said wings curved, and a yieldable 10 apron arranged for coöperation with the wings of said gate.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES J. H. GRANT.

Witnesses:

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